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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,321	05/11/2001	Peter J. Gillis	2069.273	4701

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EXAMINER

PETRAVICK, MEREDITH C

ART UNIT

PAPER NUMBER

3671

DATE MAILED: 09/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Applicant No.	Applicant(s)
	09/852,321	GILLIS ET AL. 
Examiner	Art Unit	
Meredith C Petrvick	3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_ is/are allowed.

6) Claim(s) 1-14, 17 and 20 is/are rejected.

7) Claim(s) 15, 16, 18 and 19 is/are objected to.

8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 21 August 2001 is/are: a) accepted or b) objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_ is: a) approved b) disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

    1. Certified copies of the priority documents have been received.

    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.

    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_.

**DETAILED ACTION**

***Specification***

1. The disclosure is objected to because of the following informalities:
  - a. On page 2, line 7, the second occurrence of “and replace” should be deleted.
  - b. Throughout the specification applicant uses PDC to stand for Polycrystalline Diamond Cutters. However, “polycrystalline diamond cutters” is not fully spelled out in the specification. To avoid any confusion, it is suggested that --polycrystalline diamond cutters-- is added after PDC on page 1, line 5.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 4-12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 contains the limitation “the rotating hammer” in line 5. This limitation lacks an antecedent basis.

Claim 6 states that a housing is rotated by “a rotary drive” and “a rotary drive” rotatably impacts the drill bit. Since the claim positively sets forth two rotary drives it is unclear whether

applicant is referring to the same rotary drive or separate rotary drives. For the purpose of examination on the merits it is assumed that they are the same rotary drive. Correction is required.

Claim 9 contains the limitation “the rotary drive” and depends from claim 6. It is unclear which rotary drive this limitation refers to.

Claim 10 contains the limitation “the rotary drive” and depends from claim 6. It is unclear which rotary drive this limitation refers to.

#### ***Double Patenting***

4. Applicant is advised that should claim 14 be found allowable, claim 17 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 6-7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Menton 3,396,807.

Menton discloses a rotational impact assembly for a drill bit including:

- a housing (38) adapted to be rotated by a rotary drive
- a bit (16) extending from the housing and being rotatably driven thereby
- a rotary drive (14 and 30) located in the housing for periodically and rotatably impacting the drill bit

In regards to claim 7, the housing further comprises a bit shaft (40) through which the drill bit is rotatably driven.

In regards to claim 10, the rotary drive is a driven by a drill string.

7. Claims 6-9, 11, 13-14, 17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Orr 3,316,986.

Orr discloses a rotational impact assembly including:

- a housing (3, 9, 29) with a bore (Column 2, line 7) adapted to be rotated by a rotary drive
- a fluid motor in the bore for rotating a stator shaft (inner portion of 1)
- a bit shaft (bottom of 29) for driving a drill bit
- means for periodically coupling the stator shaft and the bit shaft

In regards to claim 14, the means is an annular mass rotated by the stator shaft with a radially extending hammer (17).

In regards to claims 9, 11 and 20, the motor is rotated by drilling fluid.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menton in view of Hall 4,694,918.

Menton discloses a method for drilling including:

- Rotating a drill bit
- Periodically imparting a rotary impact to the drill bit

However, Menton only discloses a generic drill bit and not which specific type of drill bit is used.

Like Menton, Hall discloses a rotary impact drill. Unlike Menton, Hall teaches that it is desirable to used PDC drill bits in order to increase wear resistance and thereby increase the useable life of the drill bit.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the drill bit of Menton a PDC drill bit as taught in Hall, in order to increase the use of the drill bit by reducing wear. (See “Background of the Invention” and “Summary of Invention”)

In regards to claim 2, the step of imparting a rotary impact comprises:

- rotating an inertial hammer (14) to store potential energy

- periodically impacting the rotating hammer on a rotary anvil (12) so as to impart the stored potential energy to the drill bit

***Allowable Subject Matter***

10. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

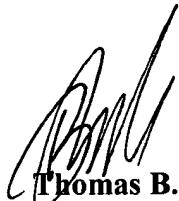
11. Claims 15-16 and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meredith Petravick whose telephone number is 703-305-0047. The examiner can normally be reached on Monday-Thursday from 7:00 a.m. – 4:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached at 703-308-3870.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is 703-305-1113. The fax number for this Group is 703-305-3597.



Thomas B. Will  
Supervisory Patent Examiner  
Group Art Unit 3671

MCP  
September 4, 2002